



# Nitocote ET402\*

## Coal tar extended epoxy resin coating

### Uses

Provides chemical and abrasion resistance to prevent corrosion of concrete surfaces for applications such as: seawater tanks, channels & intakes, manhole linings, sewage works and effluent plants, chemical processing, foundation waterproofing, jetties, piers & docks.

### Advantages

- **Low cost service life** - Excellent chemical and abrasion resistance, does not support bacterial growth
- **Cost saving** - Primerless system
- **Added value system** - Acts as an impermeable waterproof coating
- **Versatile usage** - Can be applied to green concrete by brush, roller or spray

### Specification

The corrosion resistant coating shall be Nitocote ET402, a coal tar extended, 100% solids, epoxy resin coating. The coating shall possess a high-build capability, to facilitate varying application thicknesses. It shall further possess excellent bond & chemical resistance properties & comply to BS 7542 & ASTM C309 curing efficiency standards.

### Description

Nitocote ET402 is based on solvent-free epoxy resins, modified with coal tar. It is supplied as a 2 pack material in pre-weighed quantities ready for on-site mixing & use. Nitocote ET402 is applied as a 2 coat application. It is generally applied at a wet film thickness of 200 microns per coat, but can be applied at greater thicknesses to suit exposure conditions.

### Properties

<b>Colour</b>	: Black/Brown
<b>Solids by weight</b>	: 100% (@ 25°C)
<b>Specific gravity</b>	: 1.54 @ 20°C
<b>Pot life</b>	: 75 minutes @ 25°C & 40 minutes @ 40°C
<b>Tack free time</b>	: 2 - 3 hours @ 35°C
<b>Overcoating time</b>	: 6 hours @ 35°C & 3 hours @ 45°C
<b>Full cure</b>	: 4 days @ 35°C
<b>Curing efficiency</b>	: 93% (BS 7542)
<b>Water absorption</b>	: < 0.01% (ASTM D570)
<b>Impact resistance</b>	: Passed (BS 3900, Part E3)
<b>Bond strength</b>	: Minimum 1 N/mm <sup>2</sup> (BS 1881, Part 207)
<b>Water permeability (Long Term)</b>	: Nil @ 2 bar pressure over 3 months
<b>Salt spray test</b>	: Nil @ 200 microns tested over 1000 hours (BS 1881, Part 124: 1988)

## Chemical resistance

Tests were carried out in accordance with ASTM D543. Test was conducted at room temperature of 23°C & specimens were soaked in solution for a period of 7 days.

### Acids (m/v)

<b>Hydrochloric acid 10%</b>	: Excellent
<b>Sulphuric acid 10% &amp; Nitric acid 10% &amp; Phosphoric acid 10%</b>	: Very good

### Alkalis (m/v)

<b>Ammonia 15%</b>	: Excellent
<b>Sodium Hydroxide 25%</b>	: Good

### Solvents & organics

<b>Oils, vegetable &amp; minerals</b>	: Excellent
<b>Ferric Chloride 15%</b>	: Very good

### Aqueous solutions

<b>Water &amp; Sea water:</b> Excellent	<b>Raw sewage:</b> Very good
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Consult local Fosroc office for specific recommendations to meet each operating condition.

## Instructions for use

All surfaces to be treated with Nitocote ET402 must be clean and free from dust or loose material.

**Concrete surfaces:** All laitance must be removed by grit blasting, or other suitable removal methods. The general standard of surface preparation should be in accordance with ACI 503R-89, Chapter 5, Paragraph 5.4. Following the preparation of a concrete surface, care should be taken to ensure that any surface irregularities are filled with Nitomortar FC\*† or Nitomortar FC(B)\*†.

**Metal surfaces:** Any metal surfaces should be grit blasted to a bright finish, meeting the requirements of Swedish Standard SA2½ or equal.

### Priming & mixing

**Concrete surfaces:** Priming is not required on properly prepared concrete surfaces - see Preparation section.

**Metal surfaces:** All metal surfaces should be coated immediately after preparation. If this is not possible and to eliminate formation of rust, prime the metal surfaces using Nitoprime 251R.

The contents of resin can should be thoroughly stirred to disperse any possible settlement. The entire contents of both hardener & resin cans should be poured into a suitable sized mixing vessel. It is recommended that the 2 components are mixed together mechanically using a slow speed electric drill fitted with Fosroc Mixing Paddle (MR3). Mixing should be carried out continuously for 3-5 minutes, until a uniform consistency is achieved. Although this product is a non-solvented, it is still recommended that mixing should take place in an open, well ventilated area.

## Application

A minimum 2 coat application is generally recommended to ensure a full, unbroken coating is achieved.

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**Brush application:** Once mixed, the material should be immediately applied, ensuring that a continuous coating is obtained. The first coat is applied to achieve a uniform coating with a wet film thickness not less than 200 microns, and should be allowed to dry for at least 6 hours @ 35°C before the application of the second coat. The second coat should be applied between 6 hours & 4 days (@ 35°C) after application of first coat, @ 45°C this will be reduced to 3 hours. Second coat should be applied as above again achieving a wet film thickness more than 200 microns.

**Spray application:** Where large areas are to be coated, it is advisable to consider spray application. Consult the local Fosroc office for further details and recommendations.

## Cleaning & storage

Clean tools & equipment with Fosroc Solvent 102\* immediately after use. Nitocote ET402 has a shelf life of 12 months, when stored in warehouse conditions below 35°C.

## Limitations

Nitocote ET402 is formulated for application to clean sound steel/concrete substrates & where it can be protected from contact with water for the first 24 hours after application as discolouration could occur. Do not apply over other existing coatings, but can be applied on top of itself (see above). For cold weather working (down to 5°C), it is recommended that materials are stored in a heated building & only removed immediately before use. Accelerated heating methods are not to be utilized under any circumstances.

## Hot weather working practices

Whilst the performance properties of Nitocote ET402 at elevated temperatures are assured, application under such conditions can sometimes be difficult. It is therefore suggested that, for temperatures above 35°C, the following guidelines are adopted as a prudent working regime:

- Store unmixed materials in a cool environment (preferably temperature controlled), avoiding exposure to direct sunlight
- Keep mixing & placing equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of the equipment which will come into direct contact with the material itself
- Try to eliminate application in the middle of the day, and certainly avoid application in direct sunlight
- In hand apply, ensure there are sufficient operatives available to finish application within material's pot life
- Have a ready supply of Fosroc Solvent 102 available for immediate cleaning of tools after use

## Repairing and overcoating

Any applications of Nitocote ET402 which have become damaged can be readily overcoated. The existing surface should well abraded, using a stiff wire brush, or similar, to ensure that a good mechanical bond will be achieved between the 2 layers. Overcoating works can then proceed as for new work, always ensuring that the prepared substrate is free from any moisture.

## Estimating

### Supply

<b>Nitocote ET402</b>	: 10 litre packs
<b>Nitoprime 25IR</b>	: 1 & 3 kg packs
<b>Fosroc Solvent 102</b>	: 4 & 20 litre cans

### Coverage

<b>Nitocote ET402</b>	: 5.0 m <sup>2</sup> /litre @ 200 microns wft (per coat)
<b>Nitoprime 25IR</b>	: 3.5 - 4.3 m <sup>2</sup> /kg

**Note:** Coverage figures quoted are theoretical, and based upon application to a properly prepared substrate of nominal C30 conc.

Since application conditions vary greatly; due to substrate porosity, quality of surface preparation, application thickness and wastage factors, the on-site figures may vary from those shown above.

## Precautions

### Health and safety

Nitocote ET402, Nitoprime 25IR & Fosroc Solvent 102 should not come in contact with skin/eyes or be swallowed. Avoid inhalation of vapours & ensure adequate ventilation. Some people are sensitive to resins, hardeners & solvents. Wear suitable protective clothing, gloves & eye/face protection. Barrier creams such as Kerodex Antisolvent/Rozalex Antipaint provide additional skin protection. If contacts with skin, remove immediately with a resin removing cream such as Kerocleanse Standard Grade Skin Cleanser/Rozaklens Industrial Skin Cleanser, followed by washing with soap & water - do not use solvent. If contacts with eyes, rinse immediately with plenty of water & seek medical advice. If swallowed seek medical attention immediately - do not induce vomiting. For information see MSDS of Nitocote ET402. Nitocote ET402 & Nitomortar FC are non-flammable. Nitoprime 25IR & Fosroc Solvent 102 are flammable. Do not use near a naked flame.

### Flash points

<b>Nitoprime 25IR</b>	: 55°C
<b>Fosroc Solvent 102</b>	: 33°C

\* Denotes the trademark of Fosroc International Ltd.

↑ See separate data sheet



### Important note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard Conditions for the Supply of Goods and Service.

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